



WP/16

BOBCAT Operational Updates



ICAO ATM/SG/6
30 Jul – 3 Aug 2018
Hong Kong, China



**Introduction &
Benefits of BOBCAT Operations**

CTOT Compliance

Slot Request Volume

**CTO Compliance
at Kabul FIR Entry Waypoint**

Slot Allocation Release Performance

ATFM Delay

Flight Movement Message Analysis

New Perth – London Flight Ops

Flight Level Entry Performance

Uzbekistan Radar Outage



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Benefit of BOBCAT Operations

Enhanced Information
CNS/ATM SYSTEM



\$140
million

**Estimated
Airline Cost
Savings**



140
Million kg

**Estimated
Fuel
Savings**



570
Million kg

**Estimated
CO₂ Emissions
Savings**



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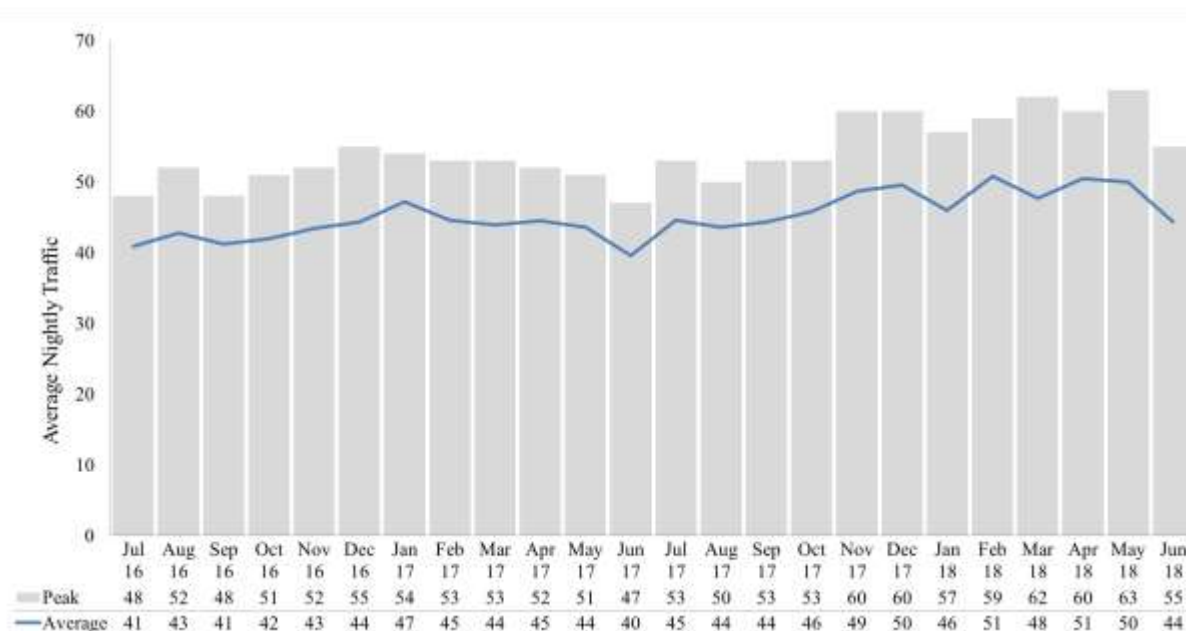
Flight Level Entry Performance

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45 Requests/Night

Average of Slot Request



*July 2016 - June 2018

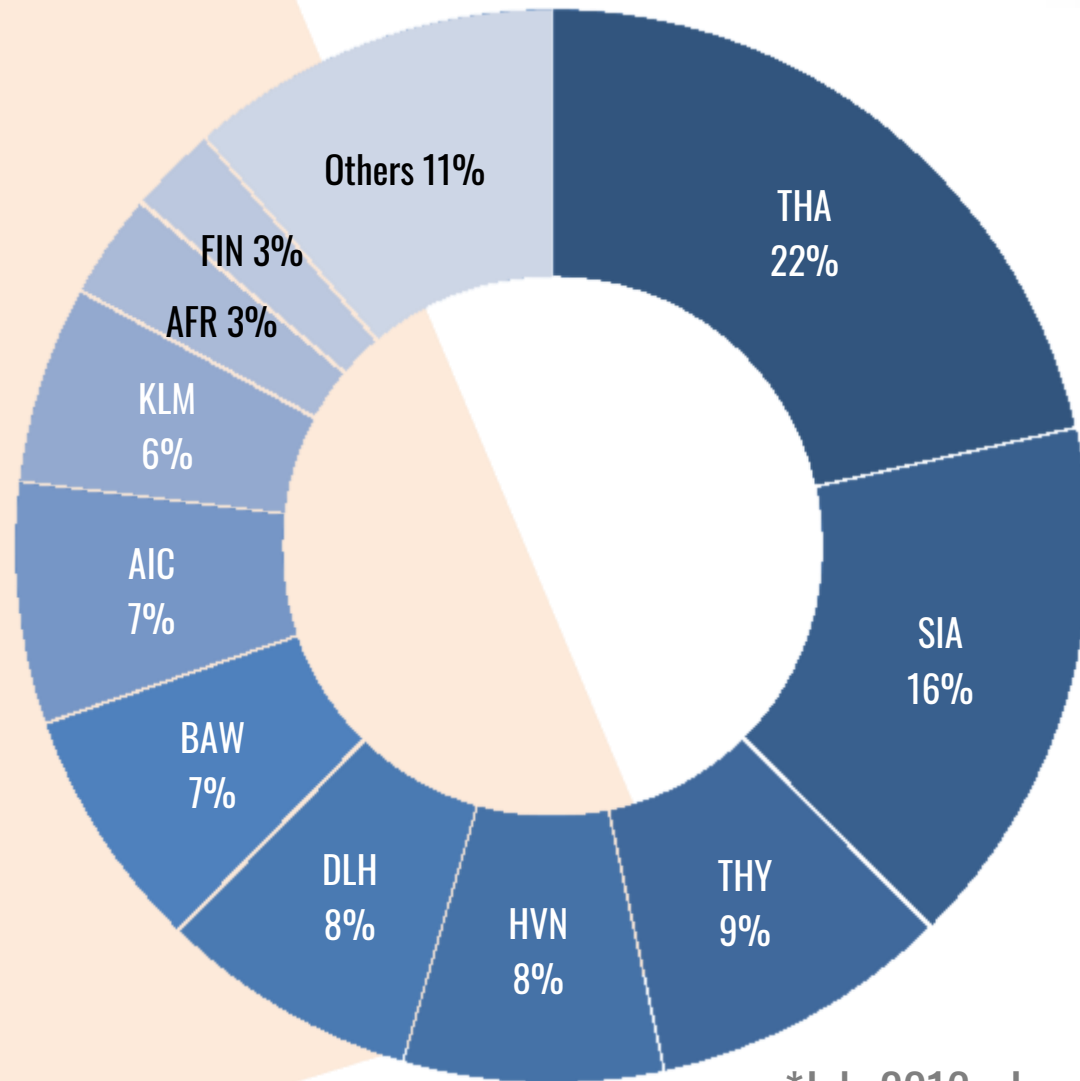
BOBCAT Slot Request by Airlines

Communication and Information Systems
CNS/ATM SYSTEM



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**Airlines
Participation**



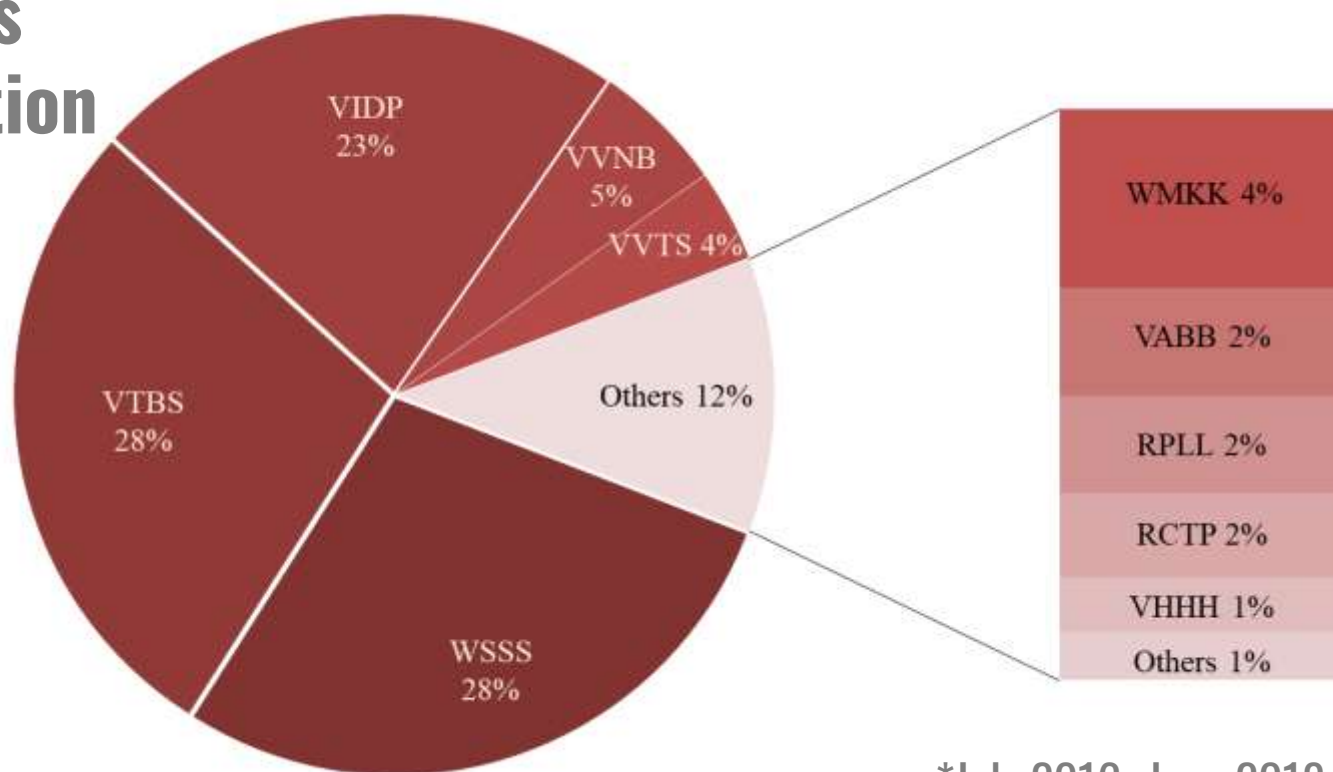
*July 2016 - June 2018

BOBCAT Slot Request by Departure Airports



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Airports Participation



*July 2016- June 2018



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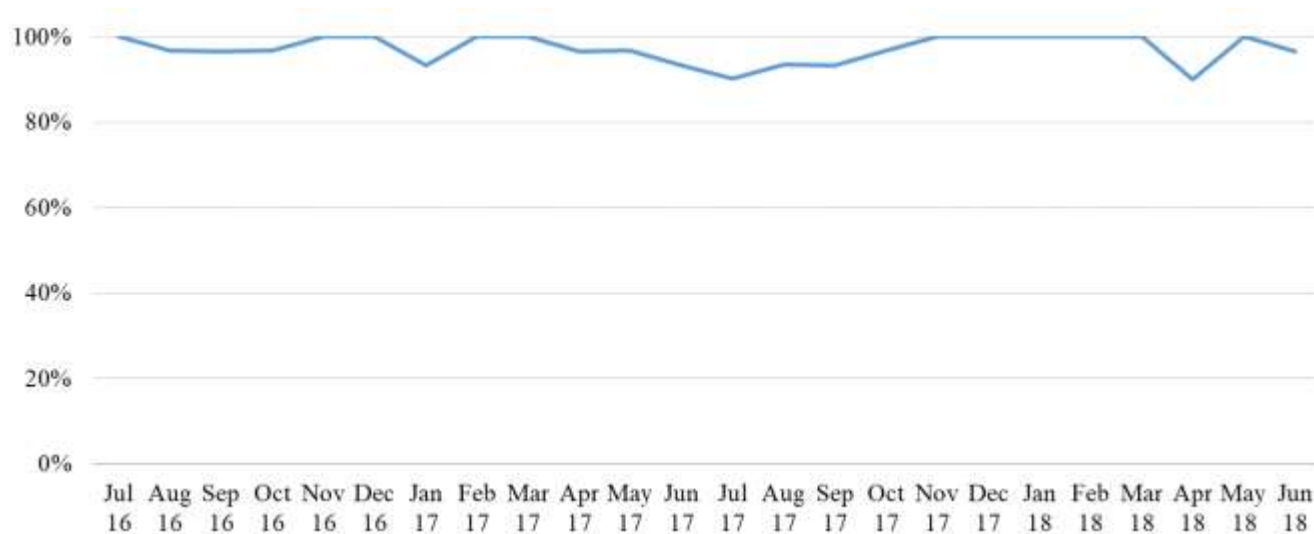
Uzbekistan Radar Outage

10-Minutes Cut-Off Time Slot Allocation Release Performance



97%

10-Minutes Cut-Off Time Slot Allocation Release Performance



*July 2016- June 2018

Traffic Sample Data for Post-Operational Analysis



**1-Week Traffic Sample Data is collected
Starting with the 3rd Sunday of each month**





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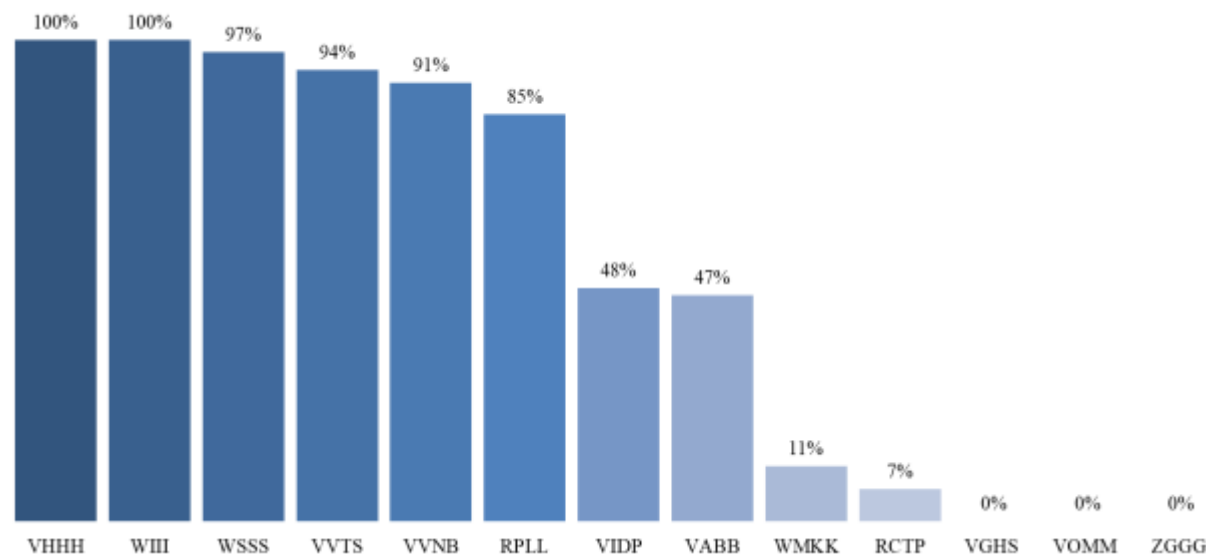
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Average Percentage of Flights with DEP Messages

CNS/ATM SYSTEM



Bangkok ATFMU had difficulties recording
DEP messages received before Jan 2018

*3rd week of every month
Jan - June 2018

Taxi-Out Time at Kuala Lumpur Airport (WMKK)

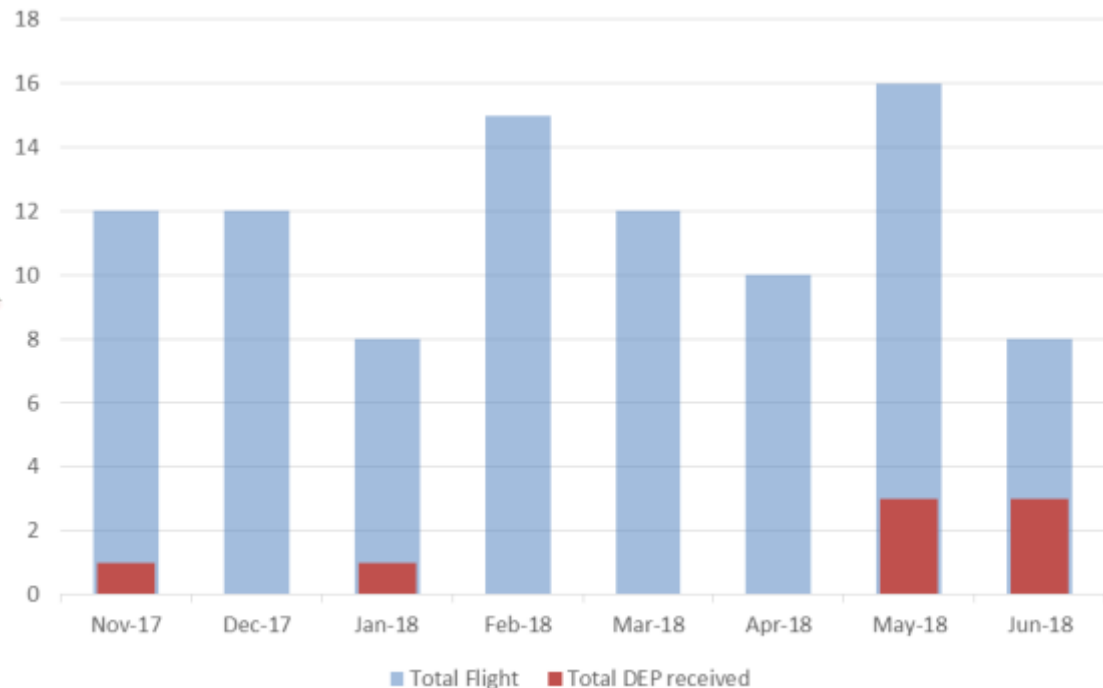


Bangkok ATFMU **reduce** taxi-out time from 20 to **15 mins** due to airline request
Since **1 Nov 2017**

But very difficult to evaluate impact
because **non-receipt DEP message** from WMKK

Only 8 Flights
in 8 Months...

But... preliminary
July 2018 data
shows improvement



Comparison between total flight and DEP received from WMKK since 1 Nov 2017



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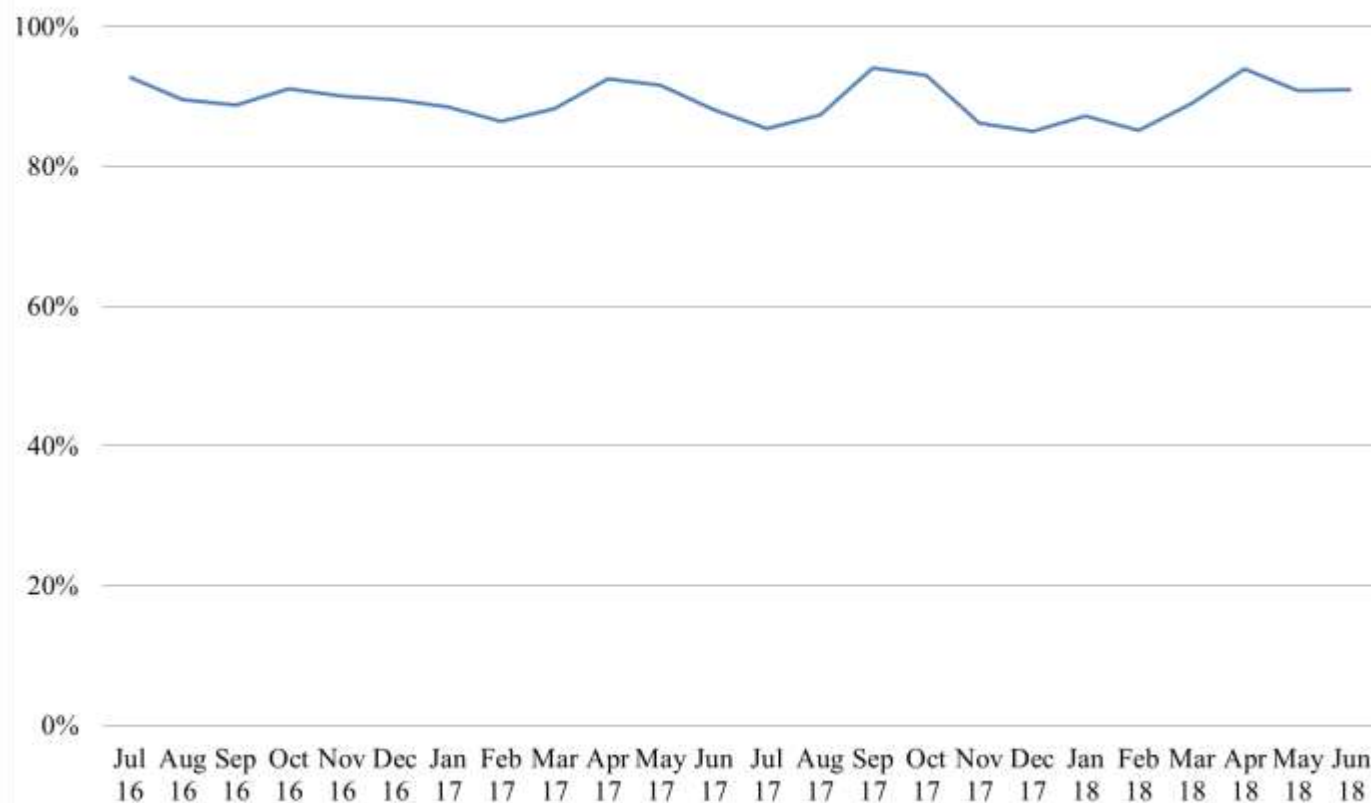
Percentage of Flights Achieving Same or Better FL

ATM SYSTEM



89%

Percentage of Flights Achieving Same or Better FL



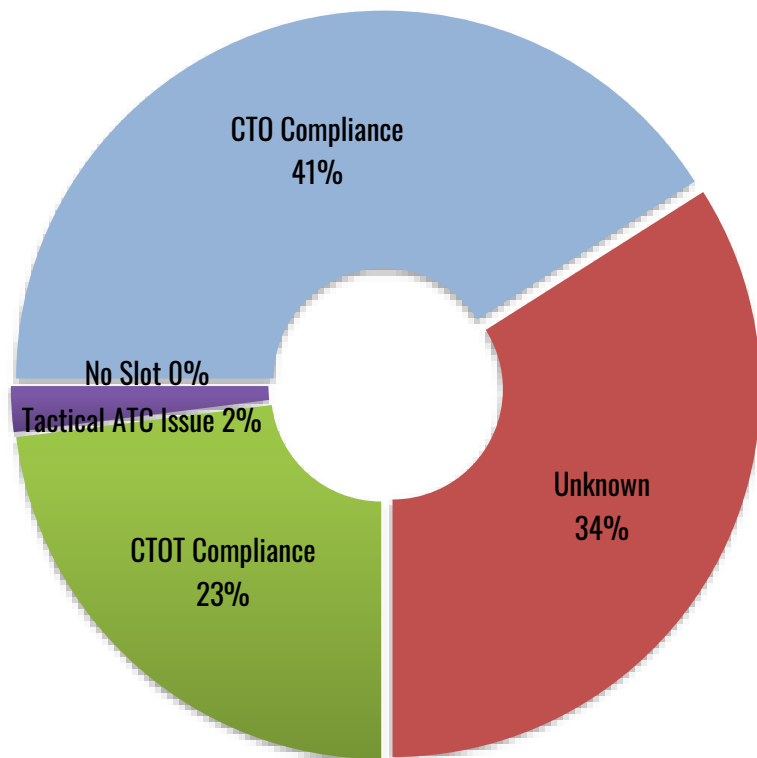
*3rd week of every month
July 2016- June 2018

Causes of Flights Not Enter Kabul FIR at Allocated FL



41% Kabul FIR Entry Time (CTO compliance)

Flights are expected to cross waypoint within the window of 5 mins after CTO



34%
Unknown (more data required)

23%
CTOT Compliance

2%
Tactical ATC issues

0%
Departure without Slot Allocation

*3rd week of every month
July 2016 - June 2018



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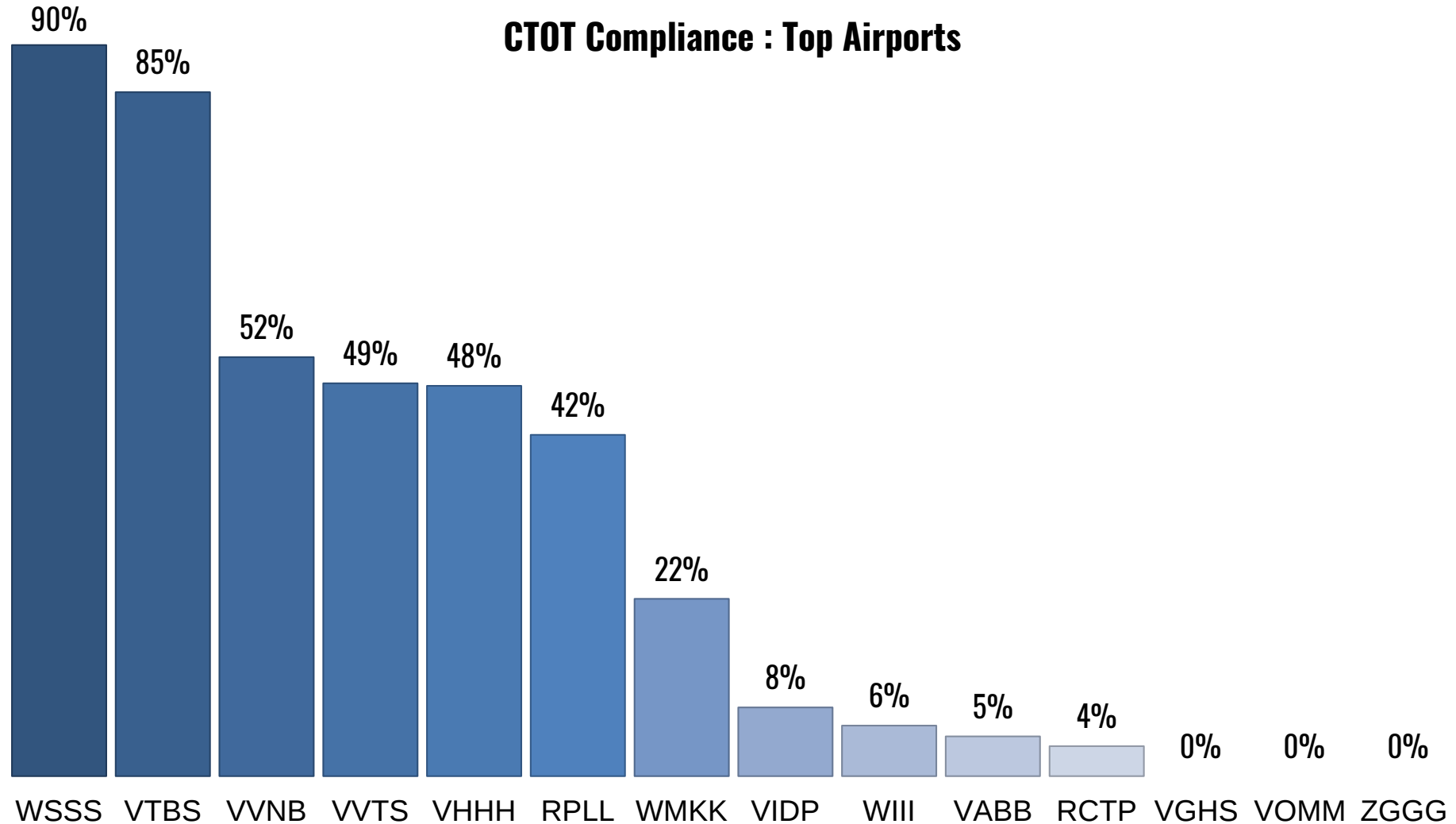
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Average CTOT Compliance

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CTOT Compliance : Top Airports



*3rd week of every month
Apr 2016 - Apr 2018



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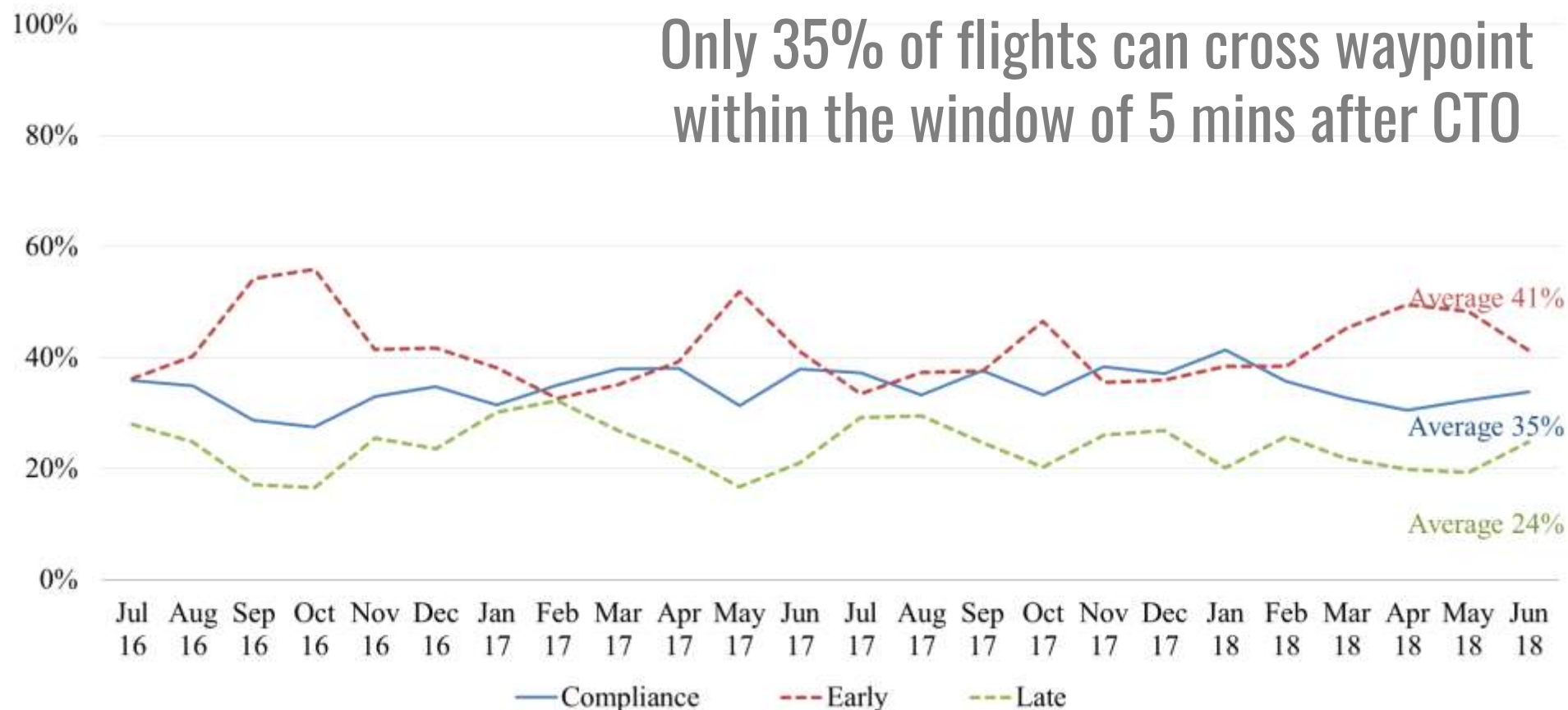
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CTO Compliance

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Only 35% of flights can cross waypoint within the window of 5 mins after CTO



*3rd week of every month
July 2016- June 2018

CTOT Compliance & CTO Compliance

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CNS/ATM SYSTEM



CTOT\CTO Compliance	Overall	Early Entry	Compliant	Late Entry
Early Take-Off	13%	92%	8%	0%
Compliant	75%	44%	43%	13%
Late Take-Off	2%	0%	17%	83%
No DEP Received	11%	32%	32%	36%

Note: Analyzed Traffic Sample Data available at
<<http://tinyurl.com/bobcat-analysis-2018-06>>

CTOT Compliant Flights & CTO Compliance

Communication and Information Systems
CNS/ATM SYSTEM



CTOT\CTO Compliance	Overall	Early Entry	Compliance	Late Entry
CTOT Compliant – Expected to Slow Down	44%	73%	26%	1%
CTOT Compliant – No Speed Modification	46%	25%	60%	14%
CTOT Compliant – Expected to Speed Up	10%	2%	38%	60%

Note: Analyzed Traffic Sample Data available at
<<http://tinyurl.com/bobcat-analysis-2018-06>>

CTOT Compliance & Afghanistan Entry

Enhanced Information
CNS/ATM SYSTEM



CTOT Compliance	Afghanistan Entry at Same or Better FL vs Slot Allocation FL
Early Take-Off	84%
Compliant	90%
Late Take-Off	75%

Note: Analyzed Traffic Sample Data available at
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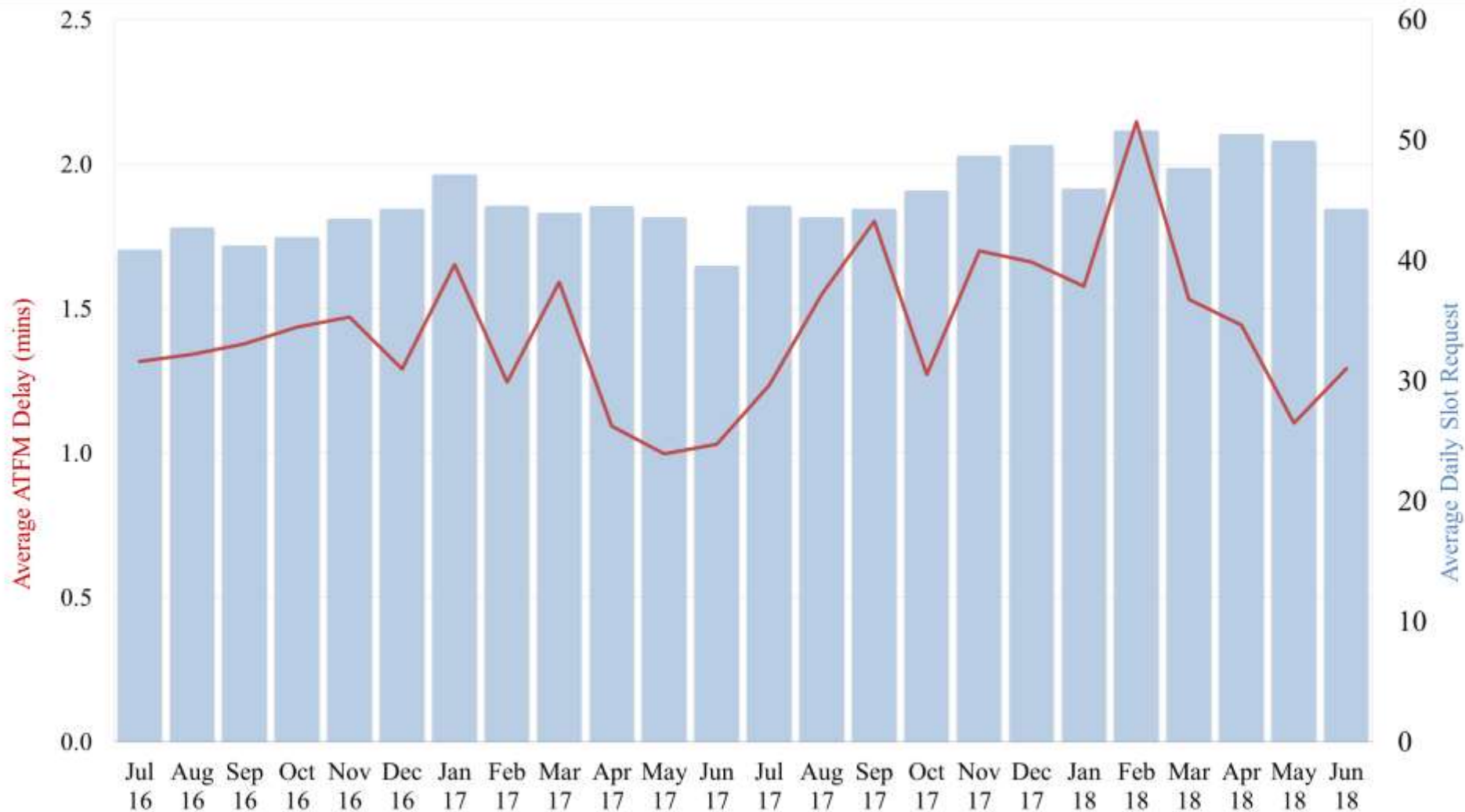
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Enhanced and Integrated
CNS/ATM SYSTEM



EOBT: ~1050UTC

Afghanistan Entry Time:
~2000-2100UTC

Afghanistan FL: FL380



Operational Frequency: daily

- not all flights operate through Afghanistan
- up to 29 Jul 2018, 2 flights operated through Afghanistan

New Perth-London Flight Ops

Enhanced and Integrated
CNS/ATM SYSTEM



BOBCAT Operational Models

1. **Change Cutoff-Time** (~0850UTC?)

- ~2 hours prior to EOBT of Perth-London flight
- All airlines and ATC units affected by new Cutoff-Time



2. **Exempt Perth-London flight ✓ (On Trial basis)**

- Qantas to submit and amend slot request to mirror actual times
- at 1200UTC, BOBCAT allocate slot as per slot request with no delay

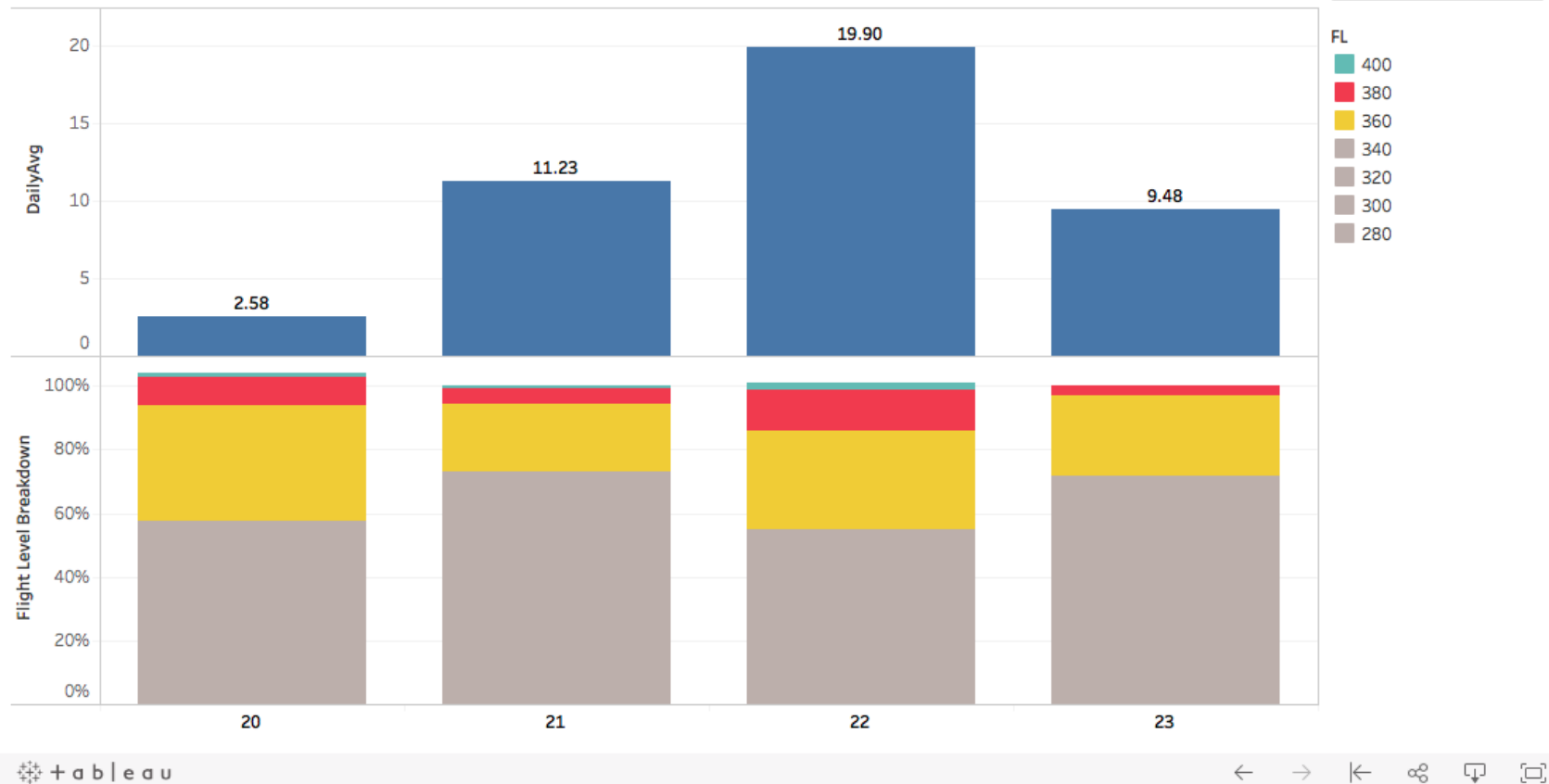
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Sample BOBCAT Traffic Demand

Average Daily Flight by Entry Hour



Reference : <http://bit.ly/bobcat380>



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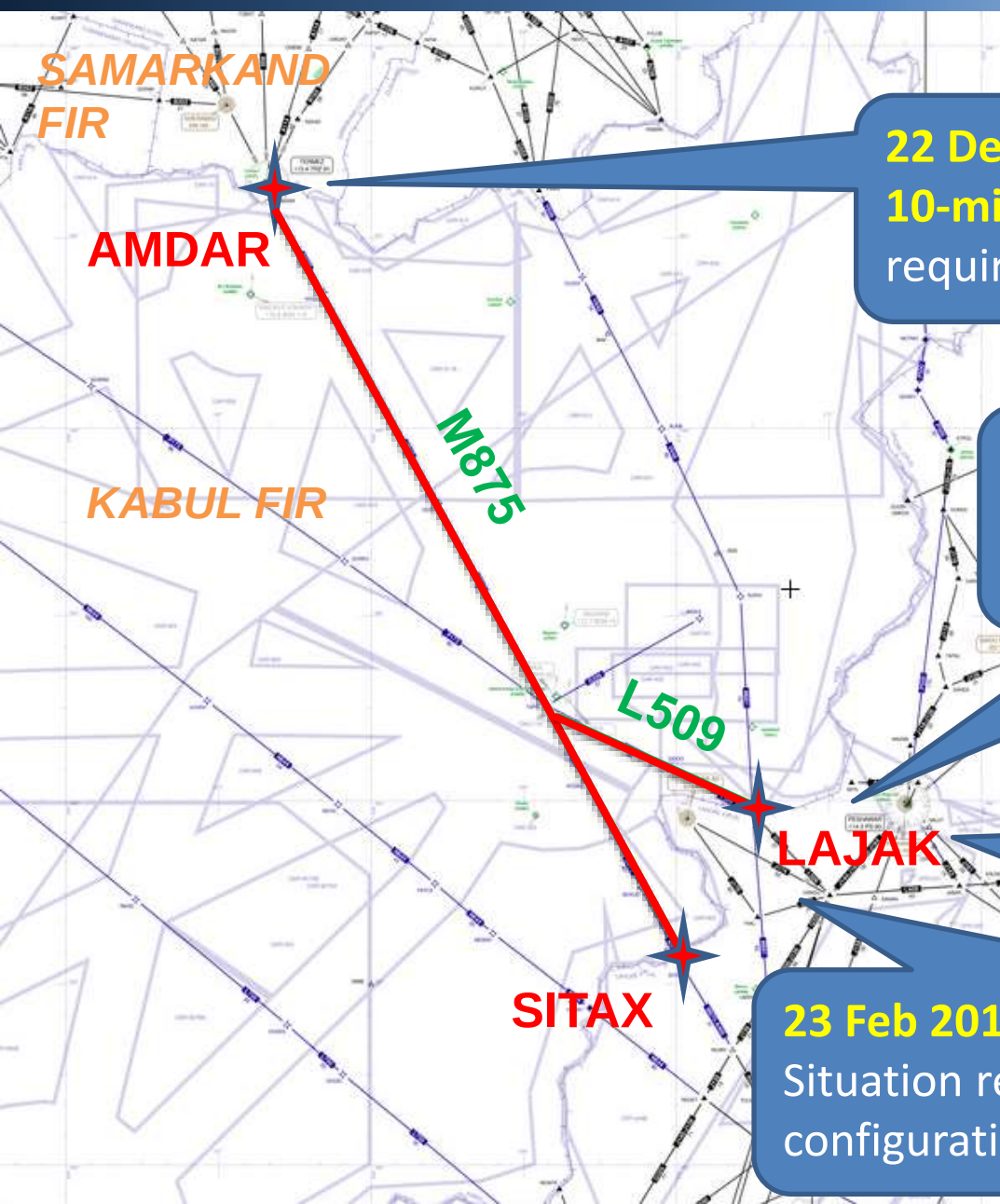
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22 Dec 2017

10-min longitudinal separation required by **Samarkand ACC**

10-min longitudinal separation at **LAJAK (L509)** and **SITAX (M875)** required by Kabul ACC

23 Dec 2017

BOBCAT configuration adjusted (**15 minutes**, instead of 12)

23 Feb 2018

Situation resume normal; BOBCAT configuration adjusted back to **12 minutes**

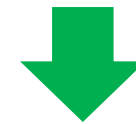
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Impact: Weekly Comparison

NY 2017 *NY 2018*

	L509 / M875	132	118	-10.6% 
	Other Routes	144	160	+22.4%

	L509 / M875	2.167	2.653	+11.1% 
	Other Routes	1.708	1.269	-25.7%

Uzbekistan Radar Outage

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Impact: Monthly Comparison

Jan 2017 Jan 2018

	L509 / M875	552	489	-11.4%	↓
	Other Routes	746	806	+8.0%	

	L509 / M875	1.730	1.812	+4.7%	↑
	Other Routes	1.595	1.435	-10.0%	



Thank you for your attention